I. ADMINISTRATIVE INFORMATION

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2). A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued. This announcement will remain open for approximately one year from the date of publication or until replaced by a successor BAA. Initial responses to this announcement must be in the form of White Papers, as detailed in Section V. 2.1. Proposals shall be requested only from those offerors selected as a result of the scientific review of the White Papers made in accordance with the evaluation criteria detailed in Section VI.1. White Papers may be submitted any time during this period. Awards may take the form of contracts, cooperative agreements, or other transactions agreements.

The Naval Surface Warfare Center Carderock Division (NSWCCD) will not issue paper copies of this announcement. NSWCCD reserves the right to select for proposal submission all, some or none from among the white papers submitted in response to this announcement. For those who are requested to submit proposals, NSWCCD reserves the right to award all, some or none of the proposals received under this BAA. NSWCCD provides no funding for direct reimbursement of white paper or proposal development costs. Technical and cost proposals (or any other material) submitted in response to this BAA will not be returned. It is the policy of NSWCCD to treat all white papers/ proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

II. GENERAL INFORMATION

1. Agency Name -
Naval Surface Warfare Center Carderock Division
9500 MacArthur Boulevard
West Bethesda, MD 20817-5700

2. Research Opportunity Title -
Cooperative Science, Technology, Research and Development Opportunities in Naval and Marine Machinery.

3. Response Date -
This announcement will remain open for approximately one year from the date of publication or until replaced by a successor BAA. White Papers may be submitted any time during this period.

4. Research Opportunity Description -

The NSWCCD Machinery Research and Engineering Directorate (Code 90), is interested in White Papers for long and short term Science and Technology (S&T) and Research and Development (R&D) projects which offer potential for advancement and improvements of Naval machinery operations and the scientific knowledge necessary to create such advancements. Our scientists and engineers provide the technology

development, acquisition support, and life cycle management for vital machinery systems and equipment which enable all Navy ships to meet performance and mission requirements for mobility, crew systems support, and combat systems interfaces. This is achieved by, working with industry and academia partners, and employing modern laboratories and research equipment to develop and validate fundamental concepts necessary for the transition of new technologies into naval machinery applications. Our mission is central to the continued effectiveness of the Navy by ensuring that newly emerging technologies are operationally ready, affordable, survivable, and environmentally compliant.

The S&T/R&D functions include: mechanical and electrical power and propulsion systems; auxiliary machinery systems; hull, deck and habitability machinery systems; machinery automation, controls, sensors, and network systems; and machinery integrated logistics systems and procedures. In their application, these products and their management over the life cycle greatly influence the viability of operation and the affordability of naval platforms.

Our work is focused on providing, at best value, the present and future Navy with systems that meet stated or implicit requirements for: new or extended depth, range, speed, and better control; quicker or more responsive action; quieter operation; greater life; higher reliability; and improved safety.

The areas of focus for White Papers and Proposals submitted in response to this BAA should include, but are not limited to, the following machinery systems and components areas:

Integrated Electric Power Systems

The development, implementation and demonstration of future electric power, emphasizing shipboard power distribution and control; power quality/continuity and system stability; electric power system/component level modeling and simulation; and electrical system survivability.

Power generation, transmission, distribution, & conversion
Power system control
Power quality
Pulsed power systems
Energy storage systems
Weapon effect analysis
Shipboard integration
Power continuity
Systems engineering
Advanced distribution architecture
Modeling and simulation analysis
Design and trade-off studies

Electric Propulsion and Machinery Systems

The research and development of quiet electric drive technologies, including electroacoustics; large-scale electric machine energy transfer via advanced brush/current collectors; integrated ship electric power technologies; advanced electro-mechanical actuators and linear motors; and electric machinery energy storage technologies.

Energy storage devices
Electric propulsion motors
Electric motors
Machinery design and development
Electroacoustics
Current collectors
Cryogenics
Modeling and simulation analysis
Electric Actuators
Propulsion motor drives
Ship service generators
Machinery systems evaluation
Design and trade-off studies
Magnetics
Superconductivity

Power Electronic Components and Devices

The research and development, simulation and prototyping of electrical systems power semiconductors (including application guidance/device characterization) and power conversion devices; linear and rotary motor drives; solid state/electromechanical circuit breakers; and microprocessor control for electric power systems.

Power converters
Semiconductors
Motor controllers
Device development
Thermal management
System protection components
Modeling and simulation analysis
Design and trade-off studies
Manufacturing

Alternate Energy Sources and Power Systems

The research and development of advanced power generation and transmission systems such as engines, fuel cells, batteries, and alternative energy and power sources; gears, shafting, bearings and associated components which provide the transmission of power for mobility, range, and endurance for ships, submarines and watercraft.

Gas turbine engines
Fuel cells
Energy conservation
Diesel engines
Engine emissions
Hybrid Cycles

Thermal and Auxiliary Systems

The research and development of alternative cooling technologies, advanced pumps, composite machinery, fluid systems, desalination equipment, piping structures, heat exchangers, hydraulic systems, advanced ventilation fans, and air conditioning/ refrigeration equipment.

Reverse osmosis desalination
Advanced heat exchangers
Advanced actuators
Thermal analysis
Biofouling control
Climate control systems
Alternative cooling systems
Modeling & Simulation

Machinery Automation and Control Systems

The development, demonstration, and implementation of automation and control technologies to reduce ownership costs by replacing personnel with dependable and survivable automated shipboard machinery and electrical systems. Included are the machinery architecture concepts, modeling and simulation tools, control algorithms, and advanced sensors.

Advanced architectures
Advanced sensor development
Control systems simulation and modeling
Robotics
Distributed control networks
Automated system reconfiguration

Machinery Acoustic Silencing Systems

The development of technologies to control machinery acoustic noise generation at the source as well as noise transmission to the ship’s hull. Included are quiet pumps and compressors, electric motor acoustic & electromagnetic modeling, acoustic filter development, transient noise analysis, machinery system noise prediction, weapons delivery and launch acoustics, fluid system acoustic analysis, and main propulsion unit

acoustics & electromagnetics. Instrumentation and measurement techniques for acoustic characterization of machinery, components, and structures are also developed.

Auxiliary component source silencing
Isolation mount development
Fluid system acoustic analysis
Machinery airborne noise control
Weapons handling and launch system silencing
Advanced sound isolation couplings
Ventilation system silencing
Damping treatments
System noise modeling
COTS equipment silencing
Modeling & Simulation

Ship's Logistics and Maintenance Systems and Processes:

The research, development, and implementation of future ship logistics and maintenance systems and processes, emphasizing support of the future littoral positioned ships in minimally manned configurations, under heavily constrained operating budgets, in extended deployments, and under reduced maintenance and resupply availabilities. Material, corrosion mitigation, e-business, information and knowledge management, web-based, asset management, wireless, open architecture, documentation management, and Condition Based Maintenance (CBM) concepts and solutions are being sought.

Advanced Logistics Analysis
Advanced Open Systems Architectures
Modeling and simulation analysis
Process design and business case analyses
Automated Mission Readiness Assessment Technologies
Data mining technologies
Self-healing systems
Corrosion monitoring and mitigation
Advance Integrated Maintenance and Logistics Information Systems
Wireless sensors and networking
Virtual training systems
Tele-maintenance and remote repair technologies
Advanced diagnostics and prognostics
Automated maintenance prescription and execution
Semantic and Case based reasoning systems
Decision Support Systems
Ontology and software agent design
Material Movement modeling and studies
Virtual Warehousing and material distribution technologies

Prior to preparing White Papers/Proposals, potential offerors are strongly encouraged to contact the NSWCCD technical points of contact identified below to determine the reasonability and interest in the proposal topic.

5. Point(s) of Contact -

Questions of a technical nature should be submitted to Mr. John Sofia, Deputy Director for Machinery Technology, Code 901, on 215-897-8085 or email at sofiajm@nswccd.navy.mil or Mr. Charles Zimmerman, Machinery R&D Program Manager, Code 911, on 215-897-7736 or email at zimmermanch@nswccd.navy.mil. Questions related to procurement issues shall be addressed to Lynn Rowe, Code 3321 on 301-227-1100 or email at rowecl@nswccd.navy.mil.

6. Instrument Type(s) -

It is anticipated that awards may take the form of contracts, cooperative agreements, and other transaction agreements, as appropriate.

III. AWARD INFORMATION

The amount and period of performance of each selected proposal will vary depending on the research area and the technical approach to be pursued by the selected offeror.

IV. ELIGIBILITY INFORMATION

All responsible sources from academia and industry may submit white papers under this BAA. Academic institutions, including Historically Black College and Universities (HBCUs) and Minority Institutions (MIs), are encouraged to submit white papers or join others in submitting white papers under this BAA.

V. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process

"White Papers" are desired by NSWCCD in response to this solicitation. Those offerors with white papers considered to have merit will be requested to prepare full proposals for the planned effort as specified under Section 2.2 below.

2. General Information for Content and Format of White Papers/Full Proposals -

The white papers/proposals submitted under this BAA are expected to be unclassified. However, confidential/classified proposals are permitted. The proposal submissions will be protected from unauthorized disclosure in accordance with FAR 15.207, applicable law, and DoD/DoN regulations. Offerors are expected to appropriately mark each page of their submission that contains proprietary information.

2.1. White Papers

2.1.1 White Paper Format

Paper Size – 8.5 x 11 inch paper
Margins – 1" inch
Spacing – single or double-spaced
Font – Times New Roman, 12 point
Page Limit – shall not exceed 3 pages
Copies – one (1) original and one electronic copy on a 3.5" Diskette or CD-ROM, (in Microsoft® Word or Excel compatible or .PDF format).

2.1.2 White Paper Content

2.1.2.1 Cover Page
The Cover Page shall be labeled "PROPOSAL WHITE PAPER," and shall include the BAA number, proposed title, technical points of contact, with telephone number, facsimile number, and e-mail address.

2.1.2.2 Technical Concept
The Technical Concept shall include a description of the technology innovation and technical risk areas. This section also includes a description of the potential Naval relevance and contributions of the proposed effort to the specific mission of the NSWCCD Machinery Research and Engineering Directorate. This section may include a plan for demonstrating and evaluating the operational effectiveness of the Offeror's proposed products or processes in field experiments and/or tests in a simulated environment.

2.2 Full Proposals

2.2.1 Full Proposal Format (Volume 1 - Technical and Volume 2 - Cost Proposal)

Paper Size – 8.5 x 11 inch paper
Margins – 1" inch
Spacing – single or double-spaced
Font – Times New Roman, 12 point
Page Limit – Volume 1 shall not exceed 50 pages (excluding resumes). There are no page limitations to Volume 2.
Copies – one (1) original and one electronic copy on a 3.5" Diskette or CD-ROM, (in Microsoft® Word or Excel compatible or .PDF format).

2.2.2 Full Proposal Content

2.2.2.1 Volume 1: Technical Proposal
Each section of the Technical Proposal must start on a new page.

2.2.2.1.1 Cover Page

This must include the words “Technical Proposal” and the following:

BAA number;
Title of Proposal;
Identity of prime Offeror and complete list of subcontractors, if applicable;
Technical contact (name, address, phone/fax, electronic mail address)
Administrative/business contact (name, address, phone/fax, electronic mail address) and;
Duration of effort (differentiate basic effort and options)

2.2.2.1.2 Table of Contents

2.2.2.1.3 Statement of Work

A Statement of Work (SOW) clearly detailing the scope and objectives of the effort and the technical approach. It is anticipated that the proposed SOW will be incorporated as an attachment to the resultant award instrument. To this end, such proposals must include a severable self-standing SOW without any proprietary restrictions, which can be attached to the contract or agreement award. When options are contemplated, the SOW must clearly identify separate optional task areas.

2.2.2.1.4 Technical Concept

The Technical Concept shall include a description of the technology innovation and technical risk areas. This section also includes a description of the potential Naval relevance and contributions of the proposed effort to the specific mission of the NSWCCD Machinery Research and Engineering Directorate. This section may include a plan for demonstrating and evaluating the operational effectiveness of the Offeror’s proposed products or processes in field experiments and/or tests in a simulated environment.

2.2.2.1.5 Project Schedule and Milestones

A summary of the schedule of events and milestones.

2.2.2.1.6 Assertion of Data Rights

Include here a summary of any proprietary rights to pre-existing results, prototypes, or systems supporting and/or necessary for the use of the research, results, and/or prototype. Any rights claimed in other parts of the proposal that would impact the rights in this section must be cross-referenced. If there are proprietary rights, the Offeror must explain how these affect its ability to deliver subsystems and toolkits for integration. Additionally, Offerors must explain how the program goals are achievable in light of these proprietary and/or restrictive limitations. If there are no claims of proprietary rights in pre-existing data, this section shall consist of a statement to that effect.

2.2.2.1.7 Deliverables

A detailed description of the results and products to be delivered. The SOW should include a summary listing of these deliverables. The deliverables list shall minimally include Technical and Financial Progress Reports, Presentation Material, Meeting Minutes, Technical Documents or Reports, and a Final Report.

2.2.2.1.8 Management Approach

A discussion of the overall approach to the management of this effort, including brief discussions of the total organization; use of personnel; project/function/subcontractor relationships; government research interfaces; and planning, scheduling and control practice. Identify which personnel and subcontractors (if any) will be involved. Submit resumes/curriculum vitae for the key personnel identified. Include a description of the facilities that are required for the proposed effort with a description of any Government Furnished Equipment/Hardware/Software/Information required, by version and/or configuration.

2.2.2.1.9 Past Performance

Offerors shall provide all relevant past performance for similar or related work under contracts currently being performed or completed during the last three (3) years. The Offeror may include Federal, State and Local Government and private sector contracts. Offerors that represent newly formed entities, without prior contract experience, should identify previous contract and subcontract experience for all key personnel identified in the proposal.

The contractor shall provide the following information for each such contract:

1. Contract Number
2. Customer/Agency
3. Contracting Officer and Technical Point of Contact (names and phone numbers)
4. Brief Description of Scope of Work
5. Contract Type
6. Award Price
7. Total Labor-Hours of Effort
8. Period of Performance
9. Contract Deliverables

2.2.2.2 VOLUME 2: Cost Proposal

The Cost Proposal shall consist of a cover page and two parts, Part 1 will provide a detailed cost breakdown of all costs by cost category by calendar/fiscal year and Part 2 will provide a Cost breakdown by task/sub-task using the same task numbers in the Statement of Work. Options must be separately priced.

2.2.2.2.1 Cover Page

The submission of cost or pricing data in accordance with FAR 15.403.4 is mandatory if the Offeror's proposed cost exceeds $550,000.00. The words "Cost Proposal" should appear on the cover page in addition to the following information:

BAA number: N00167-03-BAA-01;
Title of Proposal;
Identity of prime Offeror and complete list of subcontractors/sub-recipients, if applicable;
Technical contact (name, address, phone/fax, electronic mail address)
Administrative/business contact (name, address, phone/fax, electronic mail address) and;
Duration of effort (differentiate basic effort and options)
Summary statement of proposed costs
Cognizant DCAA and DCMA point of contact, address, phone/fax, electronic mail address (if readily available)

2.2.2.2.2 Part 1
Detailed breakdown of all costs by cost category by calendar/fiscal year (when options are contemplated, options must be separately identified and priced by calendar/fiscal year). Cost categories include:

a. Direct Labor – Individual labor category or person, with associated labor hours and unburdened direct labor rates;

b. Indirect Costs – Fringe Benefits, Overhead, G&A, COM, etc. (Must show base amount and rate);

c. Proposed contractor-acquired equipment such as computer hardware for proposed research projects should be specifically itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, shall be provided. Where possible, indicate purchasing method (competition, price comparison, market review, etc.);

d. Travel – Number of trips, destinations, duration, etc;

e. Subcontract – A cost proposal as detailed as the Offeror's cost proposal will be required to be submitted by the subcontractor. The subcontractor's cost proposal can be provided in a sealed envelope with the Offeror's cost proposal or will be requested from the subcontractor at a later date;

f. Consultant – Provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate;

g. Materials – Specifically itemized by cost element. An explanation of any estimating factors, including their derivation and application, shall be provided. Where possible, indicate purchasing method (competition, price comparison, market review, etc.);

h. Other Directs Costs and;

i. Fee/Profit including fee percentage.

2.2.2.2.3 Part 2
Cost breakdown by task/sub-task corresponding to the same task numbers (or work breakdown structure) in the Statement of Work. When options are contemplated, options must be separately identified and priced by task/sub-task corresponding to the same task numbers in the Statement of Work.

3. Significant Dates and Times-

This announcement will remain open for approximately one year from the date of publication or until replaced by a successor BAA. Proposals may be submitted any time during this period.

4. Address for the Submission of White Papers and Full Proposals –

Naval Surface Warfare Center, Carderock Division
Philadelphia Naval Business Park
5001 South Broad Street
Philadelphia, PA 19112
Marked for: Code 911 (Mr. C. Zimmerman)
Email address: zimmermanch@nswccd.navy.mil
Proposals shall be marked: N00167-03-BAA-0027

VI. EVALUATION INFORMATION

1. Evaluation Criteria –

White Papers

Evaluation of the "White Papers" will be based on a competitive selection resulting from a scientific review using the following evaluation criteria: (1) overall scientific and technical merits of the concept; and (2) potential naval relevance and contributions of the effort to the agency's specific mission. Selection of the Offeror(s) from which Full Proposals will be requested, will be based upon the Government's assessment of Items (1) and (2).

Full Proposals

Award decisions will be based on a competitive selection of proposals resulting from a scientific review. Evaluations will be conducted using the following evaluation criteria: (1) overall scientific and technical merits of the proposal; (2) potential naval relevance and contributions of the effort to the agency's specific mission; (3) the offeror's capabilities, related experience/past performance, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives; (4) the qualifications, capabilities and experience of the proposed Principal Investigator, team leader and key personnel who are critical in achieving the proposal objectives; and (5) the realism of the proposed cost and availability of funds. The degree of importance of the offeror's cost will be evaluated based on the assessment of the overall technical merit of the proposal and the funds available for the technology area proposed.

For proposed awards to be made as contracts to large businesses, the socio-economic merits of each proposal will be evaluated based on the extent of the Offeror's commitment in providing meaningful subcontracting opportunities for small businesses, HUBZone small businesses, small disadvantaged businesses, woman-owned small businesses, veteran-owned small businesses, service disabled veteran-owned small businesses, historically black colleges and universities, and minority institutions.

2. Evaluation Panel -

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-5 and 15.207. The cognizant Government scientific experts will perform the evaluation of technical proposals. Cost proposals will be evaluated by Government business professionals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. Similarly, support contractors may be utilized to evaluate cost proposals. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employee having access to technical and cost proposals submitted in response to this BAA will be required to sign a non-disclosure statement prior to receipt of any proposal submissions.

VII. OTHER INFORMATION

1. Security Classification

In order to facilitate intra-program collaboration and technology transfer, the Government will attempt to enable technology developers to work at the unclassified level to the maximum extent possible. If access to classified material will be required at any point during performance, the offeror must clearly identify such need prominently in their proposal.

If developers use unclassified data in their deliveries and demonstrations regarding a potential classified project, they should use methods and conventions consistent with those used in classified environments. Such conventions will permit the various

subsystems and the final system to be more adaptable in accommodating classified data in the transition system.